



PATENT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND  
INTERFERENCES

Docket No.: PFLUG

In re PATENT Application of:	)
RAINER PFLUG et al.	) Examiner: Sy, Mariano Ong
Appl. No.: 09/754,618	) Group Art Unit: 3613
Filed: January 4, 2001	)
For: THRUST BALL BEARING	)

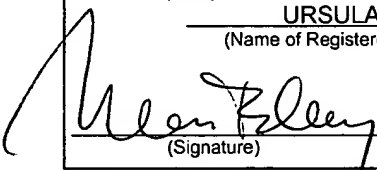
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REPLY BRIEF

Commissioner for Patents  
P.O. Box 1450  
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<u>DECEMBER 31, 2003.</u>	
(Date)	URSULA B. DAY
	(Name of Registered Representative)
 (Signature)	Dec. 31, 2003 (Date of Signature)

SIR:

This reply brief is in response to the Examiner's Answer, mailed  
October 31, 2003.

## RELATED APPEALS AND INTERFERENCES

Appellant hereby states that there are no related appeals and/or interferences which would directly affect or be directly affected by or have bearing on the decision in the pending appeal.

## REMARKS

In the Examiner's Answer (Response to Arguments); the Examiner raised the point of appellant not having made a statement with respect to related appeals and/or interferences. In reply thereto, appellant has hereby submitted the foregoing relevant statement.

Furthermore, the Examiner has raised certain new points of arguments, which appellant wishes to address with this reply brief, being filed in triplicate, pursuant to 37 C.F.R. §1.193(b).

In the Answer, the Examiner states that on page 6, second paragraph: *....on pages 7 and 8 appellant is separately arguing the references. The rejection is based on a combination of references.....* With respect to this assertion, the Examiner has taken appellant's analysis of what Niina teaches out of context, since the references must be by necessity perused for the structures the Examiner alleges to be present in the claimed invention<sup>1</sup>. Surprisingly, the

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<sup>1</sup> Note that the Niina reference was cited by appellant as prior art on page 2 of the description and therefore considered when the application was prepared, so that appellant was intimately familiar with the problem as posed in Niina and the solution provided in Niina.

Examiner then goes on identifying in detail which structures the Examiner believes are present in Niina. The conclusion must therefore be that in order for appellant to review the Examiner's application of a combination of references to the claims the reference must by necessity be perused for structural elements as discussed by the Examiner.

On page 6, third paragraph the Examiner's statement *"..... Since Niina hasn't specifically stated that the first and second bearing disks are made from a through-hardenable ferrous material (assuming that appellant means of a ferrous material through hardened completely through the material)...."* is not understood. Does the Examiner mean that appellant has not understood the meaning of through-hardened? Appellant is at a loss to understand the meaning of the paragraph, except to note that paragraph 0008 of the instant application denotes the exact meaning of the term 'through-hardening'.

On page 7, second and third paragraphs, the examiner states that Volkmuth discloses: *"through-hardened rolling bearing components. These components include rings, rollers, balls, washers and generally all parts of a rolling bearing made of through hardened bearing steel"*. Concluding, the Examiner then states that it would be *"clear from Volkmuth '634 that one of ordinary skill in the art would have made a rolling bearing component, which encompasses thrust rolling bearing from through hardened steel to increase the useful life of the bearing"* Applicant submits that the standard of showing obviousness by combining references is not fulfilled by citing a reference which neither discloses nor teaches how to make or produce bearings disks for thrust

ball bearings (Niina) from through-hardenable and where the second reference (Volkmuth) is not directed to thrust ball bearings but to **roller bearings** mentioning only a cursory general listing of parts ....*generally all parts of rolling bearing.....* In particular, the Examiner failed to appreciate appellant's recognition of a problem related to the failure of thrust ball bearings which Niina could not solve, and thus the Examiner failed to appreciate appellant's discovery of a solution to this specific problem.

The Examiner continues on page 7, fourth paragraph with the citation of the reference Technical book which the Examiner cites "*as further evidence that most rings and rolling elements are made from through hardened bearing steel.*" Again, the combination of references to render a claim obvious does not rest on such casual statements found in the reference as cited above. There has to be some evidence of the problem that the reference tries to address, which would lead to the solution without the benefit of hindsight.

The Examiner has taken the position that he had discussed the motivation of combining the references throughout the prosecution history citing the cols. and lines in the Official Actions. However, as the record shows, the same paragraphs as recited here by the Examiner are simple repetitions. Combining Niina, Volkmuth and Technical book (Official Action March, 2003), the Examiner states.....*however, Niina fails to disclose first and second bearing disks made from through hardenable ferrous material. Volkmuth teaches the use of through hardenable ferrous material. Volkmuth teaches the use of through hardened rolling bearing components which include rings, balls, washers, and generally all*

*parts of a rolling bearing made of through hardened bearing steel, [citations to cols. and lines omitted] Technical book. Ball and Roller Bearings [citation omitted] teaches the use of through hardening rolling bearing components. It would have been obvious to one of ordinary skill in the art to have merely utilized the well known through hardening bearing steel for use on bearing disks of Niina, in view of the teachings of Volkmuth and the Technical book, in order to withstand heavier loads and extend the usage and life of the bearing.*

The above citation from the prosecution history is repeated in the various Official Actions, a discussion as to the reason in what way one is led by the combination has never been put forth. It is appellant's opinion, that the Examiner has failed to show why these three references lead one to the claimed disks of the thrust **ball** bearing wherein the disks are made of through-hardened steel.

Appellant is not disputing that through-hardening ferrous material is a novel technique and admits that through-hardened materials have been known in the prior art. However, appellant's position is that the gaps between the references are of a nature such that the skilled artisan, even taking the references together is not taught about a thrust ball bearing utilizing disks from through-hardenable ferrous material as claimed.


Niina is concerned with the heat treatment to a certain depth of the raceway in a thrust ball bearing for a scroll compressor. There is clear indication that the solution to the flaking problem sought in Niina was one of degree or, about the **quantity** of heat treatment to be applied. In other words, how much heat treatment must be applied to obtain a suitable hardness for the thrust ball

bearing (see also claim 1 in Niina). Thus, Niina does not provide a starting point from which to be guided by Volkmuth and Technical book. Volkmuth describes a specific type of through-hardening steel or cast iron components for **roller** bearing components, that is, it teaches an approach to treatment of **roller** bearing components from steel or cast iron material. Roller bearings are however in and of themselves different from ball bearings and roller bearings are not suitable for scroll compressors since the journal rotates in peripheral contact with a number of rollers and therefore exhibits entirely different dynamics. Technical book refers in general to rolling bearing steels and cites as a specific bearing element only a thrust **needle** roller (see Technical book p. 38 3<sup>rd</sup> paragraph). A combination of the two references even in view of Technical book does not lead someone to a thrust **ball** bearing having disks from through hardenable ferrous material and would thus only be possible by taking a hindsight position.

It is appellant's contention that a person skilled in the art will not refer to treatment of roller bearings when looking to improve thrust ball bearings disks for a scroll compressor. Also, it is appellant's contention that there was no motivation to combine Niina with Volkmuth and Technical book because the prior art does not address through-hardening for thrust ball bearing disks. Appellant fails to find any support for the Examiner's belief that Volkmuth or Technical book teaches or suggests a through-hardening technique for thrust ball bearings.

For the foregoing reasons and the reasons stated in Appellant's Brief of Appeal, it is respectfully requested to overrule the Examiner's rejections.

Respectfully submitted,

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Reply:

In particular, the Examiner failed to appreciate appellant's recognition of a problem related to the transitional sections that Bonjean et al. was completely unaware, and failed to appreciate appellant's discovery of a solution to this problem.